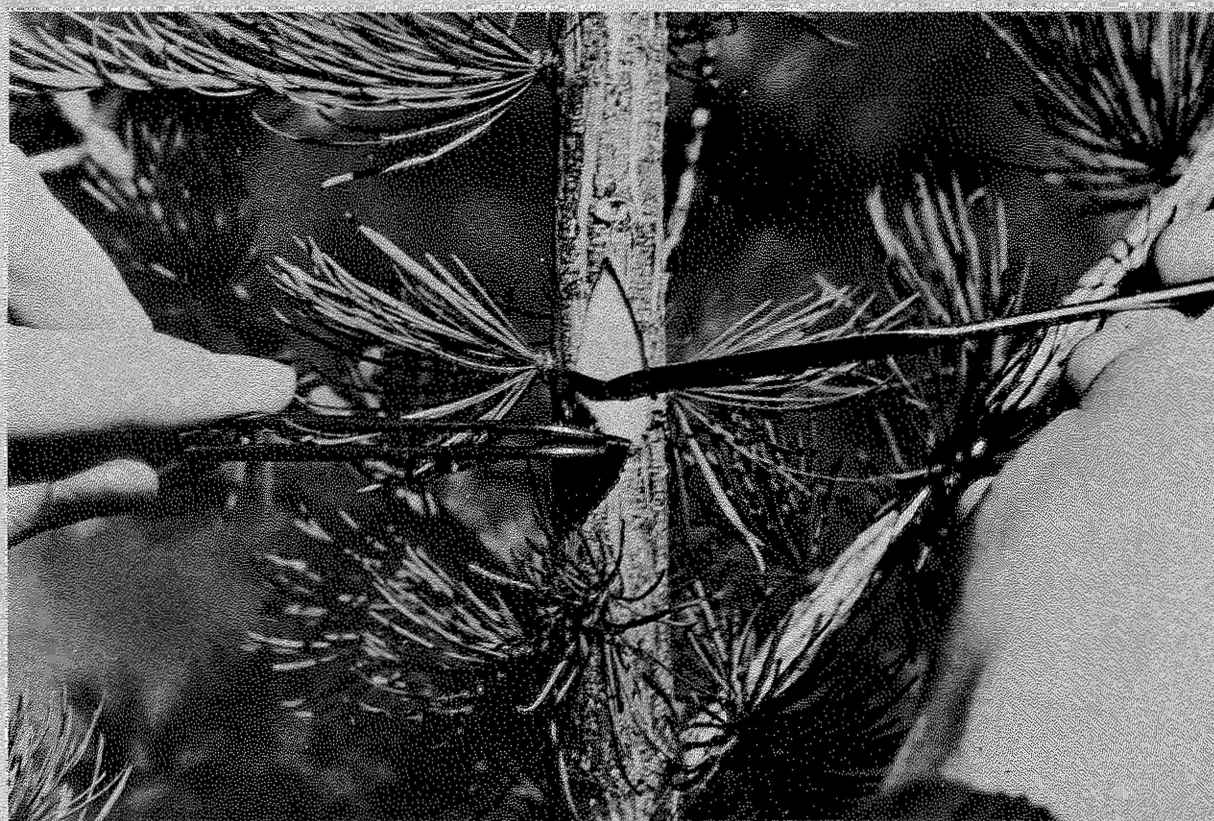


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FOREST DISEASE CONDITIONS IN THE NORTHERN REGION 1969



U. S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE
DIVISION OF STATE AND PRIVATE FORESTRY

MISSOULA, MONTANA 1380 (3000)

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Cover: Artificially inoculating a young western larch tree with a fungus suspected to be a cause of larch canker disease. Fungus mycelium is introduced aseptically into the tree. The wound is then closed and sealed with grafting wax. After a 2-year period, the tree will be evaluated for canker development.

FOREST DISEASE CONDITIONS IN THE NORTHERN REGION 1969

By

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SUMMARY

Wilting of conifer seedling nursery stock was extensive in the regional nursery at Coeur d'Alene, Idaho. Two soil fungi, Fusarium oxysporum and Verticillium sp., were the causal agents. A considerable amount of effort was expended in the treatment of dwarf mistletoe-infected timber stands. Cytospora abietis and Phomopsis pseudotsugae caused considerable damage on 10- to 30-year-old western larch. Needle cast diseases including Rhabdocline pseudotsugae on Douglas-fir, Elytroderma deformans on ponderosa pine, and Hendersonia pinicola and Hypodermella concolor on lodgepole pine decreased in intensity and were considered enphytotic. Hypodermella laricis also decreased. Extensive physiological damage was caused by winter drying early in 1969. White pine blister rust (Cronartium ribicola) continued its destruction of western white pine. Preliminary analyses of conifer needle tissue in the Columbia Falls, Montana, area indicate a nearby aluminum reduction plant may be causing extensive damage to many types of vegetation. A very large root rot center was found near the Swan-Seeley divide on the Flathead National Forest.

NURSERY DISEASES

During late summer and early fall of 1969, personnel at the Coeur d'Alene Forest nursery detected wilted seedlings in western larch, Douglas-fir and spruce beds. Samples of diseased and "healthy" seedlings were sent to the forest pathology lab in Region 1 at Missoula, Montana. Two fungi, Fusarium oxysporum and Verticillium sp., were consistently isolated from diseased and "healthy" seedlings, indicating the disease is widespread through the soil at the nursery. Outplanting of infested stock could result in very poor survival.

DWARF MISTLETOES

A total of 1,285 acres of forest land were treated for protection from three species of dwarf mistletoe during the first half of fiscal year 1970, including 78 acres on the Colville National Forest, 200 on the Deerlodge, 397 on the Flathead, 422 on the Gallatin, and 188 on the Lewis and Clark. Of the total, 232 acres were treated with P&M funds,

NEEDLE CAST DISEASES

Rhabdocline pseudotsugae was found occasionally over the Douglas-fir type. The most severe damage was restricted to Douglas-fir Christmas tree plantations near Plains, Montana.

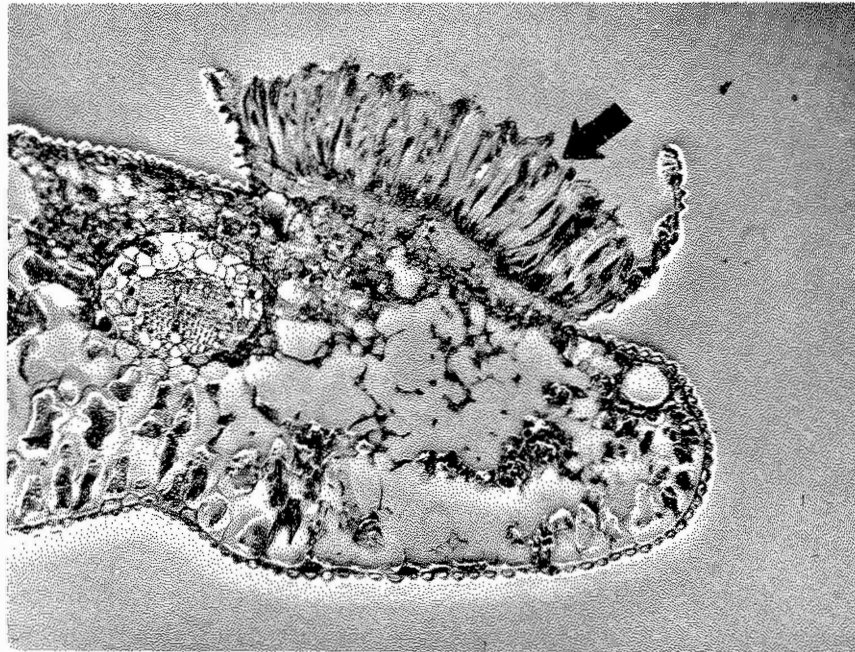


Figure 2.--Cross-section of a fruiting body of Rhabdocline pseudotsugae on a Douglas-fir needle. Note the small spores at the tip of the arrow. Also note the destruction of the mesophyll cells of the needle.

Elytroderma deformans was reported on lowland ponderosa and lodgepole pine in the Region. The most severe conditions were noticed on the Colville and Bitterroot National Forests. The disease causes symptoms that are esthetically unpleasing, thus degrading the appearance of campgrounds in which it has become established.

Hendersonia pinicola was found on the Lolo and Flathead National Forests. Damage was classified as very light. Hendersonia is often found associated with Hypodermella needle cast fungi.

Hypodermella concolor on lodgepole pine was extremely light this year. A small amount was noted on the Gallatin and Lolo National Forests.

Hypodermella laricis was also light, but was found mainly in areas of high larch casebearer concentration. No significant damage was done by this fungus in 1969.



Figure 3.--Aluminum reduction plant at Columbia Falls, Montana. Considerable amounts of hydrogen fluoride and particulate fluorides are released in the effluents of this plant, and are quite toxic in biological systems.

ROOT ROTS

Root rot caused by Fomes annosus in a ponderosa pine plantation on the Colville National Forest was mapped by the plane-table method in 1969. Spread and intensification will be followed in subsequent years. Fomes annosus was found in several stands of ponderosa pine on the Colville and Kaniksu Forests, and likely is present throughout the Region.

Armillaria mellea was noticed Regionwide. No estimate is available of the impact of this organism on timber production, but it probably is quite high. A very large center involving nearly 20 acres of Douglas-fir was discovered on the Flathead Forest near the Seeley-Swan Divide.